

## Title (en)

Method for producing strontium ranelate and its hydrates

## Title (de)

Verfahren zur Synthese von Strontiumranelat und seinen Hydraten

## Title (fr)

Procédé de synthèse du ranélate de strontium et de ses hydrates

## Publication

**EP 2042497 A1 20090401 (FR)**

## Application

**EP 08290906 A 20080925**

## Priority

FR 0706731 A 20070926

## Abstract (en)

Synthesizing strontium ranelate compounds (I) and their hydrates, comprises: reacting 3-cyano thiophene compound (II) with soda or potash, in water or mixture of water and organic solvent at 0-100[deg] C, to give a salt of 5-(bis-carboxymethyl-amino)-3-carboxymethyl-4-cyano-thiophene-2-carboxylic acid (III); and reacting strontium chloride with mixture of water and organic solvent at 0-100[deg] C to give (I), after the isolation. Process for synthesizing strontium ranelate compounds of formula (I) and its hydrates, comprises: reacting 3-cyano thiophene compound of formula (II) with soda or potash, in water or mixture of water and organic solvent at 0-100[deg] C, to give a salt of 5-(bis-carboxymethyl-amino)-3-carboxymethyl-4-cyano-thiophene-2-carboxylic acid of formula (III); and reacting strontium chloride with mixture of water and organic solvent at 0-100[deg] C to give (I), after the isolation. R, R1 : 1-6C alkyl, preferably CH3; and A : Na or K. An independent claim is included for a potassium salt of 5-(bis-carboxymethyl-amino)-3-carboxymethyl-4-cyano-thiophene-2-carboxylic acid of formula (IIIb). [Image] [Image] [Image] ACTIVITY : Osteopathic. MECHANISM OF ACTION : None given.

## Abstract (fr)

Procédé de synthèse industriel du ranélate de strontium de formule (I) : et de ses hydrates.

## IPC 8 full level

**C07D 333/38** (2006.01)

## CPC (source: EP KR US)

**A61P 19/00** (2017.12 - EP); **A61P 19/08** (2017.12 - EP); **A61P 19/10** (2017.12 - EP); **C07D 333/38** (2013.01 - EP US); **C07D 333/42** (2013.01 - KR)

## Citation (applicant)

- WO 2007020527 A2 20070222 - GLENMARK PHARMACEUTICALS LTD [IN], et al
- EP 1403266 A1 20040331 - SERVIER LAB [FR]

## Citation (search report)

- [AD] EP 0415850 A1 19910306 - ADIR [FR]
- [A] WO 2007020527 A2 20070222 - GLENMARK PHARMACEUTICALS LTD [IN], et al
- [A] EP 1403266 A1 20040331 - SERVIER LAB [FR]
- [E] DATABASE CA [online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; HUANG, HANZHONG ET AL: "Method for preparing strontium ranelate heptahydrate", XP002482496, retrieved from STN Database accession no. 2008:111403 & CN 101108845 A 20080123 - TIANJIN INST PHARM RESEARCH [CN]

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## Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

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## DOCDB simple family (publication)

**EP 2042497 A1 20090401**; **EP 2042497 B1 20100310**; AP 2008004617 A0 20081031; AP 2400 A 20120430; AR 068535 A1 20091118; AT E460408 T1 20100315; AU 2008221618 A1 20090409; AU 2008221618 B2 20120209; BR PI0803636 A2 20090602; CA 2640041 A1 20090326; CA 2640041 C 20110308; CL 2008002833 A1 20090807; CN 101397292 A 20090401; CO 6110143 A1 20091231; CR 10292 A 20081126; CY 1110036 T1 20150114; DE 602008000790 D1 20100422; DK 2042497 T3 20100607; EA 014247 B1 20101029; EA 200801884 A1 20090428; EC SP088771 A 20090227; ES 2342233 T3 20100702; FR 2921367 A1 20090327; FR 2921367 B1 20091030; GE P20115191 B 20110325; GT 200800190 A 20100521; HN 2008001490 A 20101008; HR P20100260 T1 20100630; IL 194089 A0 20091118; IL 194089 A 20160421; JO 2964 B1 20160315; JP 2009132676 A 20090618; JP 5016575 B2 20120905; KR 101099995 B1 20111228; KR 20090032009 A 20090331; MA 30319 B1 20090401; ME 01849 B 20110228; MX 2008012119 A 20090325; MY 144180 A 20110815; NI 200800257 A 20110112; NZ 571511 A 20100129; PA 8797001 A1 20090917; PE 20090703 A1 20090627; PL 2042497 T3 20100630; PT 2042497 E 20100428; RS 51356 B 20110228; SA 08290594 B1 20110223; SG 151207 A1 20090430; SI 2042497 T1 20100630; SV 2008003033 A 20100121; TW 200920743 A 20090516; TW I358408 B 20120221; UA 97638 C2 20120312; US 2009082578 A1 20090326; US 2012029210 A1 20120202; US 8063100 B2 20111122; UY 31341 A1 20081031; WO 2009074741 A2 20090618; WO 2009074741 A3 20091126; ZA 200808176 B 20100224

## DOCDB simple family (application)

**EP 08290906 A 20080925**; AP 2008004617 A 20080915; AR P080104129 A 20080924; AT 08290906 T 20080925; AU 2008221618 A 20080919; BR PI0803636 A 20080925; CA 2640041 A 20080925; CL 2008002833 A 20080924; CN 200810148917 A 20080917; CO 08099515 A 20080919; CR 10292 A 20080917; CY 101100439 T 20100517; DE 602008000790 T 20080925; DK 08290906 T 20080925; EA 200801884 A 20080925; EC SP088771 A 20080925; ES 08290906 T 20080925; FR 0706731 A 20070926; FR 2008001329 W 20080925; GE AP2008010919 A 20080922; GT 200800190 A 20080919; HN 2008001490 A 20080926; HR P20100260 T 20100511; IL 19408908 A 20080915; JO P20080427 A 20080925; JP 2008245193 A 20080925; KR 20080094125 A 20080925; MA 31243 A 20080916; ME P25210 A 20080925; MX 2008012119 A 20080923; MY PI20083603 A 20080916; NI 200800257 A 20080925; NZ 57151108 A 20080925; PA 8797001 A 20080924; PE 2008001612 A 20080915; PL 08290906 T 20080925; PT 08290906 T 20080925; RS P20100252 A 20080925; SA 08290594 A 20080920; SG 2008067878 A 20080915;

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US 201113317114 A 20111011; US 28469508 A 20080924; UY 31341 A 20080915; ZA 200808176 A 20080925